

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

**PCT** SEP 22 2003

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL SEARCH REPORT  
OR THE DECLARATION

To:  
ROPE & GRAY  
Attn. Vincent, Matthew P.  
One International Place  
Boston, MA 02110-2624  
UNITED STATES OF AMERICA

**Ropes & Gray**

**Symbol #:** CIBT-PWO-104

**Action Due:** Act cited-renew family re IDS (PCT Rule 44.1)

**Deadline(s):** 18 NOV 2003 / 18 DEC 2003

**Ropes & Gray**

**Symbol #:** CIBT-PWO-104

**Action Due:** File Article 19 Amndmt.

**Deadline(s):** 18 OCT 2003 / 18 NOV 2003

Date of mailing  
(day/month/year)

18/09/2003

Applicant's or agent's file reference

CIBT-PWO-104

**FOR FURTHER ACTION**

See paragraphs 1 and 4 below

International application No.

PCT/US 01/ 32100

International filing date  
(day/month/year)

15/10/2001

Applicant

CURIS, INC.

1. ☒ The applicant is hereby notified that the International Search Report has been established and is transmitted herewith.

**Filing of amendments and statement under Article 19:**

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

**When?** The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

**Where?** Directly to the International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland  
Facsimile No.: (41-22) 740.14.35

**For more detailed instructions,** see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Further action(s):** The applicant is reminded of the following:

Shortly after **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within **19 months** from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within **20 months** from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority

 European Patent Office, P.B. 5818 Patentlaan 2  
NL-2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Heike Zoglauer

## NOTES TO FORM PCT/ISA/220 (continued)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

**The following examples illustrate the manner in which amendments must be explained in the accompanying letter:**

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:  
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:  
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:  
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or  
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:  
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

### **"Statement under article 19(1)" (Rule 46.4)**

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

**It must be in the language in which the international application is to be published.**

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

### **Consequence if a demand for international preliminary examination has already been filed**

If, at the time of filing any amendments and any accompanying statement, under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the time of filing the amendments (and any statement) with the International Bureau, also file with the International Preliminary Examining Authority a copy of such amendments (and of any statement) and, where required, a translation of such amendments for the procedure before that Authority (see Rules 55.3(a) and 62.2, first sentence). For further information, see the Notes to the demand form (PCT/IPEA/401).

### **Consequence with regard to translation of the international application for entry into the national phase**

The applicant's attention is drawn to the fact that, upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

|  |   |  |  |
|--|---|--|--|
| Applicant's or agent's file reference<br><b>CIBT-PWO-104</b> | <b>FOR FURTHER ACTION</b>                                       |  | see Notification of Transmittal of International Search Report<br>(Form PCT/ISA/220) as well as, where applicable, item 5 below. |
| International application No.<br><b>PCT/US 01/ 32100</b>     | International filing date (day/month/year)<br><b>15/10/2001</b> | (Earliest) Priority Date (day/month/year)<br><b>13/10/2000</b> |  |
| Applicant<br><b>CURIS, INC.</b>                              |   |  |  |

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 7 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☒ furnished subsequently to this Authority in written form.

☒ furnished subsequently to this Authority in computer readable form.

☒ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☒ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☒ **Certain claims were found unsearchable** (See Box I).

3. ☒ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1

☐ None of the figures.

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 01/32100

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:  
  
Although claims 1-9, 14-18, 21 and 22 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☒ Claims Nos.: 1-22  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:  
  
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:  
  
1-13 completely and 17, 18 partially

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-13 completely and 17, 18 partially

Methods of treatment and diagnosis of conditions associated with gli overexpression comprising hedgehog antagonists.

2. Claims: 14-16 completely and 17, 18 partially

Methods of promoting lung development and surfactant production by treatment with hedgehog antagonists.

3. Claims: 19, 20

Methods for predicting cancer based on gli overexpression.

4. Claims: 21, 22

Methods of treating cancer with hedgehog antagonists.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 1-22

Present claims 1-22 relate to compounds defined by reference to a desirable characteristic or property, namely their ability to antagonise hedgehog.

The claims cover all compounds having this characteristic or property, whereas the application provides support within the meaning of Article 6 PCT and disclosure within the meaning of Article 5 PCT for only a very limited number of such compounds. In the present case, said claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible.

Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the compound by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, the search has been carried out for those parts of the claims which appear to be clear, supported and disclosed, namely those parts relating to hedgehog antibodies and the Compound B antagonist.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/32100

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K31/00 A61K39/395 C12N15/11 A61P35/00 C07K14/47

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, WPI Data, PAJ, MEDLINE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
|------------|---|-----------------------|
| X          | <p>DAHMANE N ET AL: "Activation of the transcription factor Gli1 and the Sonic hedgehog signalling pathway in skin tumors"</p> <p>NATURE, MACMILLAN JOURNALS LTD. LONDON, GB,</p> <p>vol. 389, 23 October 1997 (1997-10-23), pages 876-881, XP002133796</p> <p>ISSN: 0028-0836</p> <p>page 880, line 24 - line 26</p> <p>page 880, line 58 - line 60</p> <p>---</p> <p>-/--</p> | 1-3                   |

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## ° Special categories of cited documents :

\*A\* document defining the general state of the art which is not considered to be of particular relevance

\*E\* earlier document but published on or after the international filing date

\*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\* document referring to an oral disclosure, use, exhibition or other means

\*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*Z\* document member of the same patent family

Date of the actual completion of the international search

28 May 2003

Date of mailing of the international search report

18.09.03

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
 NL - 2280 HV Rijswijk  
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
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Authorized officer

Nichogiannopoulou, A

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/32100

| C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT |  |                       |
|--|--|-----------------------|
| Category *   | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No. |
| A  | HAMMERSCHMIDT M ET AL: "The world according to hedgehog"<br>TRENDS IN GENETICS, ELSEVIER SCIENCE PUBLISHERS B.V. AMSTERDAM, NL,<br>vol. 13, no. 1, 1997, pages 14-21,<br>XP004015059<br>ISSN: 0168-9525<br>page 20, left-hand column, paragraph 2<br>---   | 1                     |
| A  | RUIZ I ALTABA A: "Gli proteins and Hedgehog signaling: development and cancer"<br>TRENDS IN GENETICS, ELSEVIER SCIENCE PUBLISHERS B.V. AMSTERDAM, NL,<br>vol. 15, no. 10,<br>1 October 1999 (1999-10-01), pages 418-425, XP004179561<br>ISSN: 0168-9525<br>page 418, right-hand column, paragraph 2 - paragraph 3; figure 2B; table 1<br>--- | 1                     |
| A  | WO 00 41545 A (ONTOGENY INC (US))<br>20 July 2000 (2000-07-20)<br>the whole document<br>---  | 1                     |
| A  | WO 00 18428 A (BIOGEN INC)<br>6 April 2000 (2000-04-06)<br>the whole document<br>---   | 1                     |
| A  | BELLUSCI S ET AL: "INVOLVEMENT OF SONIC HEDGEHOG (SHH) IN MOUSE EMBRYONIC LUNG GROWTH AND MORPHOGENESIS"<br>DEVELOPMENT, COMPANY OF BIOLOGISTS, CAMBRIDGE,, GB,<br>vol. 124, no. 1, 1997, pages 53-63,<br>XP000877451<br>ISSN: 0950-1991<br>the whole document<br>---  | 1                     |
| A  | URASE KOKO ET AL: "Spatial expression of Sonic hedgehog in the lung epithelium during branching morphogenesis."<br>BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS,<br>vol. 225, no. 1, 1996, pages 161-166,<br>XP002242845<br>ISSN: 0006-291X<br>the whole document<br>-----  | 1                     |



# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/32100

| Patent document<br>cited in search report |   | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|---|---|---------------------|----------------------------|---------------------|
| WO 0041545                                | A | 20-07-2000          | US 6291516 B1              | 18-09-2001          |
|   |   |                     | AU 2849100 A               | 01-08-2000          |
|   |   |                     | CA 2370042 A1              | 20-07-2000          |
|   |   |                     | EP 1143961 A2              | 17-10-2001          |
|   |   |                     | JP 2003517279 T            | 27-05-2003          |
|   |   |                     | WO 0041545 A2              | 20-07-2000          |
|   |   |                     | US 2001034337 A1           | 25-10-2001          |
| WO 0018428                                | A | 06-04-2000          | AU 5918699 A               | 17-04-2000          |
|   |   |                     | CA 2343335 A1              | 06-04-2000          |
|   |   |                     | EP 1112087 A2              | 04-07-2001          |
|   |   |                     | WO 0018428 A2              | 06-04-2000          |
|   |   |                     | US 2002015702 A1           | 07-02-2002          |